



# Intermontanus

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## NEWS & ANNOUNCEMENTS

### IMPORTANT: USFWS NEEDS *BUFO BOREAS* INFORMATION

The U.S. Fish & Wildlife Service (USFWS) has received a petition to list *Bufo boreas* and they need Utah distribution information. If you have ever seen this species in Utah please let the USFWS know the locality, date, numbers, and any other information you have. The USFWS is also interested in areas where *B. boreas* was once present, but now appear to be absent. Send any information you have to Leon Colborn, U.S. Fish & Wildlife Service, 2078 Administration, 1745 West 1700 South, Salt Lake City, UT 84104-5110. **They need to have the information by 27 November 1993!!**

### MORE ABOUT THE STATE HERPETOLOGIST POSITION AND A PERSPECTIVE ON UTAH CONSERVATION FROM 50 YEARS AGO

Below are a recent newspaper article about the loss of the State Herpetologist position, followed by two papers by Vasco M. Tanner which appeared in the *Proceedings of the Utah Academy of Sciences, Arts and Letters*. The first paper was written in 1936 while the second was presented at a symposium on Utah conservation in 1948. I have highlighted several sections which indicate conservation problems have not changed much in the last fifty years.

The Utah Division of Wildlife Resources eliminated the job of the state's only full-time herpetologist. Dave Ross had just completed a report indicating the Wasatch Front population of spotted frogs is fragmented and well on its way to extinction. Ross said he doesn't know if his dismissal was related to his conclusions on this project, and on a desert tortoise study he had done for the Division. **"I was told I was being fired due to politics and budget cuts, rather than job performance,"** he said. **"I got the feeling politics played a main role."** Bob Williams, state director for the U.S. Fish and Wildlife Service in Utah, called Ross' firing "really unfortunate." He said, "We rely so much on DWR biologists to give us on-the-ground decisions on herp animals, and without that resource it will be more difficult to make good decisions. **It would appear they [DWR] don't have much concern for snakes or frogs or other herps that don't bring in the money.**" **Game species including fish, deer and elk bring license revenues to the state.** [Reprinted from the *Las Vegas Review Journal*, July 18, 1993]

### Shall We Adopt Means of Conserving the Wild Life of Utah?

By Vasco M. Tanner

We are now entering upon a period of our national life when much attention is being directed to the preservation of the plant and animal species of this country. When Columbus lead the people of the old world to the shores of America, they found here a fauna and flora rich in species which was well balanced in its relationships. The valleys and mountain slopes of this new country were well wooded and from them flowed regulated streams which teemed with native fishes. Many of them useful for game purposes. Our lakes and marshes provided homes for countless numbers of ducks and shore birds and no other country probably was provided with more upland game

birds and large game mammals than was our own.

We have, however, acted, as it were, like drunken sailors and have thrown away our inheritance in wasteful and riotous living. After three hundred years we find that it is time for us to about-face if we are to save and perpetuate our remaining plant and animal species. Many of our species have been completely exterminated and many others must be properly managed if they are to be perpetuated.

It is my purpose in this short paper, therefore, to call attention to two important problems in this connection: First, to point out that there is a difference between what is called game on the one hand and wildlife on the other. Second, to emphasize the necessity of putting into operation recognized conservation measures for the perpetuation and protection of all our plant and animal species.

In dealing with our first problem, we find that to many, game is wildlife, or at least the only part of it worthy of attention. To others, game is an artificial classification for a limited number of species which are more interesting and more worthy of preservation than others. If we tabulate the number of kinds of animals reckoned as game or non-game we find that 88 species or 14.6% of our fresh water fish, 69 or 8.5% of our birds and 82 or 12.2% of our mammals are currently classified as game, while no amphibians or reptiles are so considered. If we take the percentage of the total number, 239, of game species among those of all, 2368, of the 5 groups, we find it to be just about 10. What of the remaining 90%. That 90% from the stand point of general wildlife conservation is certainly entitled to consideration.

Of our Utah species, we find that of the 25 native species of fish, about 7 or 25% of them may be considered as game species. Of the 300 species of Utah birds, between 30 and 35, or about 10% are considered as game birds. Of the 191 species of Utah mammals, about 10% may be considered as game animals. Not one of the 12 species of amphibians or of the 43 species of reptiles found in Utah are classed as game. We find, therefore, that about 9.4% of our total vertebrate species, 571, may be classed as game, leaving about 90% which are neither classified nor dealt with under our present setup of handling wildlife.

The recreational value of the pursuit of game is large and is the greatest public value now dependent on game, but is it indispensable? In the development of the 10% known as game, about 15 or 20% of our wildlife species have fallen into a disrepute and are classified as undesirable or as vermin. As a result, those who are interested mainly in game have waged a war upon this 15%. Too often the vermin species, therefore, are very unwisely dealt with and their position in the balance of nature is rarely considered. Vermin species are animals having a definite place in the economy of nature. Their place in the balance of nature has been won through countless ages of change and adaptation to the demand of Mother Nature.

Of the birds classified as vermin, practically all of them are protected by Federal law. This protection has not been given without good reason, which was to guard against the birds becoming exterminated and their important contributions in the balance of things lost. True, various predatory animals and destructive flesh-eating birds should be dealt with as individuals or small groups if they are doing damage. But our predatory animals and flesh-eating birds should not be condemned as a whole and used as shooting targets because of the damages done by a few individuals of their



class.

As has been pointed out, not to exceed 10% of the wildlife species of the country are game and only 15% have either game or commercial value. Many of the species of commercial value are rated as undesirable by game breeders and together with other species put in this category by hunters and fishermen make up about 30% of the total number of our forms of wildlife. The remaining about 70% are presumably neutral from the point of view of being game or vermin. But what of the 30%? Shall they be considered fair marks for warfare in behalf of the 10 or 15%? Since they include all of the valuable fur bearers of the country as well as other species having some commercial value, most of them protected by law, besides many interesting species that have been given strict legal attention, the answer from the legal point of view is decidedly negative. Campaigns against undesirable species as herein discussed cannot be carried on without being considered as a violation of the law.

As to our second point in the discussion of the conservation of the wildlife of our State, **we should appreciate the fact that it is impossible to deal with a portion, such as 10 or even 30% of our wildlife without, in some way or another, impinging upon or changing the status of the remaining 70 to 90%. Conservation of wildlife should be dealt with in the strictest sense of the term and applied to all species.** Is all our wildlife to be forgotten and trodden upon in our attempt to gratify what is called our love of the chase?

**Attempts to conserve in the wild, one group of animals at the expense of the other is rarely if ever justifiable from a conservation point of view. Conservation of game alone cannot be successfully achieved by plans that have not been carefully studied and framed to meet the needs at hand. Conservation, if it is to succeed, must be based upon long range planning; it must consider the whole field of wildlife and the interests of all the people. Special privilege and selfishness have no place in a conservation program that is worthy of the name. We must act as custodians of the wildlife, using it and enjoying it to the fullest extent, but seeing to it that it is passed on to generations yet unborn.**

To achieve this end Utah should establish a conservation department similar to what is found in many of the states. **In this department all the activities of the Reclamation, State Land Office, State Board of Health, Forest Service, Recreational, Biological Survey, State Fish and Game Department, the major Educational institutions, and other agencies should be motivated and coordinated by a leadership that will make possible the greatest development of our plant and animal resources for this generation and a safe and sure perpetuation of these for future generations.** [Reprinted from the *Utah Academy of Sciences, Arts and Letters*. 1936. 13:189-90.]

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## Conservation of Cold-Blooded Vertebrates

By Vasco M. Tanner

Prior to the turn of the century, the resources of this nation were considered as inexhaustible. We have become a powerful influence among other nations because of the unprecedented rate at which these resources have been developed. In fact the American way is based upon a lavish use of soils, plants, animals, oil and the metallic minerals. For the past fifty years, however, we have had many leaders calling attention to the rapid dissipation of these capital assets. Since our high standards of living is based upon a continuance of the renewable resources and a most wise use of the nonrenewable ones, such as oil, coal and minerals, we are called to work out means of conserving them.

Here in Utah, as throughout the nation, great inroads have been made on the unbalancing of the water, soil, plant and animal assets. Soils are being destroyed and watersheds denuded, processes which bring about loss and change in the fauna and flora of this region.

The Great Basin, of which western Utah is a part, presents many unique and distinctive natural history problems. Within this great enclosed desert region are physical or mechanical barriers of various kinds which have served to limit the spread or distribution of the biota. As a result since late Pleistocene times much of the fauna has been landlocked. This has had its influence upon the aquatic species as well as on the less active or migratory land forms and has resulted in the development of many endemic species. Of the 18 species of fishes now known to occur in the Great Basin of Utah, 11 species are not known outside the boundaries of the state. What do we know about the extrinsic factors that have influenced the development of these piscatorial forms? What have we done to learn the habitat requirements of the interesting endemic trout *Salmo utah* once so abundant in Utah lake? This species was amenable to the warm summer water of the lake and was a choice game fish. There are many problems that now need to be solved if this species is to be restored. Should we not spend more time studying the native species that have evolved within this area? In the development of this state there has been a total disregard for the native species in an attempt to establish introduced ones. The hatchery and planting program has, as in other parts of the nation, the application of the results of careful study. Likewise studies of natural production in streams and lakes and the retention of the fry and fingerling within the streams should be made. There are great losses of young fish resulting from lack of screening of canals and ditches. More attention should be given to getting and applying lake biology information in this region. **Just as we have disregarded the native fish fauna in developing game fishing in Utah, so have we ignored the 69 species of amphibians and reptiles of the state. Without the help from toads, frogs, lizards and snakes the agricultural interests would be greatly changed. We know from actual study that the toads and some frogs are worth \$20 to \$30 apiece in biological control on the cultivated land of this state. We must do more to make this known and to protect as well as increase their numbers. The rodents and other small mammals found on the range and mountain lands are food for many of our native snakes. In fact the snakes play a major role in reducing small mammal populations. More attention should be given to promoting the welfare of the serpent population of our state.**

**This line of thinking leads to the conclusion that we must deal with all the species of plants and animals as well as the environment of this region in working out a conservation program. We should have the best trained personnel that the state can produce and provide them with the best equipment and facilities at our disposal. This personnel should not be tied to political apron-strings, but be free to carry out a program in keeping with the findings, and with our peculiar conditions. No**



group should be able to dictate a shortsighted program which deals with a few species at the expense of the whole. A knowledge of a species and its habitat requirements should be gained before it is introduced into our midst.

**We need more science and biology in our management of the wildlife of this area.** Our custodians of the animal life should be well trained ecologists in the broadest sense. We must look to a democratic cooperative management of our resources. [Reprinted from the *Utah Academy of Sciences, Arts and Letters*. 1948. 30:41-42.]

## FEATURES

### THE IMPACT OF THE TUACAHN DEVELOPMENT ON THE GILA MONSTER IN PADRE CANYON, WASHINGTON COUNTY, UTAH

The banded gila monster (*Heloderma suspectum cinctum*) is a well known resident of our hot desert region surrounding the St. George area in Washington County, Utah. Though the subject of much controversy and superstition as well as being the recipient of relentless persecution, the reptile has been able to "hold its own" in those areas where undeveloped critical habitats exist. Unfortunately, urban-suburban expansion is now targeting these areas largely due to the breathtaking red rock scenery. Without the preservation of these areas the lizard's days in southern Utah are likely numbered.

At one time gilts were far more common in this area. Long time resident and local expert Dr. Andrew Barnum of Dixie College in St. George has stated that many years ago he could go out in any direction from town and expect to find one. Gila monsters were so plentiful among the boulder strewn slopes along the Virgin river at present-day Bloomington that he could find one any time he wanted, weather permitting. Today, sightings in these areas are virtually nonexistent.

Now there are only a handful of small localized populations left, with the best populations residing on private lands slated for development. Fortunately, our "key" population in "Paradise Canyon" Shares habitat with a high-density population of the Desert Tortoise, a federally protected endangered species. Here, developers have been blocked from installing a championship golf course, despite attempts to settle the Desert Tortoise on private lands dispute (The Habitat Conservation Plan) with the U. S. Fish & Wildlife Service. Here, the tortoise will likely provide the necessary salvation. But what about those areas where the gila monster won't be able to rely on the "amazing grace" of the Desert Tortoise?

Currently, the Utah Division of Wildlife Resources employs one major form of protection. The possession of gila monsters is prohibited, coupled with an aggressive anti-poaching campaign. The author of this document can attest to the vigilance, having been approached by law enforcement after a visit to Paradise Canyon. However, poaching appears to be continuing based on discovery this year of a collecting bag and an apparent gila monster trap. In spite of the prohibition of collection & possession, there is no protection on a state level from development. Lizards can be squashed by construction equipment, buried by earthmovers, or otherwise displaced by changes in their natural environment.

Certainly our officials are aware of the sensitive nature of this animal; the current protection strategy testifies of this. Yet we need to do more to prevent the loss of critical habitats, and to minimize the loss of precious life through the development process.

This author has been monitoring a little-known, high-density, localized population of gila monsters on private land now in the process of being developed near Ivins, known locally as "Padre Canyon". A number of private and academic people feel these findings are significant. It is the intent of this report to present the observations as found, discuss the potential impact now in progress, and provide this documentation to those who are in authority; suggesting some possible alternatives to the death and/or

displacement by the development process.

## Study Area

Padre Canyon is a north-south oriented canyon in a Mojave - Great Basin Desert transition area along the northern edge of the gila monster's known range. Located within the northeastern limits of the city of Ivins (T41S R16W S28), the canyon can be seen immediately west of the south entrance to Snow Canyon State Park. The canyon is bounded on both sides by towering Navajo sandstone cliffs resting atop layers of softer sedimentary deposits that make up the lower slopes and valley floor. Elevations run from between approximately 3,200' in the valley to well over 3,700' on the east and 4,400' on the west. The study area is .9 miles in length and from .1 to .5 miles in width. It is nearly equally divided into "thirds" by two low-ranging hills, both connected to the western slopes below the cliffs. A major wash runs the entire length of the canyon, dotted by "islands" of desert trees and shrubs, and fed by numerous smaller drainages from the surrounding valley. The slopes below the cliffs are covered by numerous sandstone boulders, which are also strewn about the valley floor in the northern end. An area of fine windblown sand sloping down from the west side to the main wash lies just within the northern boundary. Dominant perennial plants include the Creosote bush (*Larrea tridentata*), Bursage (*Ambrosia dumosa*), Matchweed (*Gutierrezia sarothrae*), and Blackbrush (*Coleogyne ramosissima*). Annuals, especially cheat grass, are abundant throughout spring and early summer.

## Fieldwork and Methods

Years of experience have taught this author that gila monsters are most active on warm Spring days with high temperatures ranging between 85° and 95° F. The gila monster in Utah is known to reach peak activity during morning and evening periods in May (Coombs, 1977; Beck, 1986, 1990). These two factors contributed to the timing of visits to the canyon. A total of 12 visits were made, covering 17 days and 34 morning/evening activity periods in May-June of 1992 and April-May-June of 1993.

Gila monster tracks were located by carefully searching areas of fine sandy soils in the main wash and its tributaries, at the entrance of burrows, at the entrance to natural cavities beneath rocks, and in the dune area at the north end. Area, frequency, characteristics and size of the tracks were noted.

Gila monsters were located by following tracks, by moving slowly through rocky areas of harder soils, and by scanning areas with binoculars from a high vantage point. Once an animal had been located, care was taken to avoid being detected so that the lizard could be followed and observed. Approximate routes traveled along with activities and areas of location were noted.

All gila monsters possess pattern irregularities that can be used to fairly accurately identify one from another. The characteristics of individual patterns were noted for potential future encounters. Photos were taken when in possession of a camera.

## Results

Evidence of gila monster activity was found throughout the study area with the exception of the brush-covered flats between the main wash and the western slope near the mouth of the canyon. Most of the sign was observed along the main wash and its tributaries, becoming much more concentrated in the areas immediately to the north, east, and south of the north hill. A total of 16 sightings involving 13 different gila monsters were recorded; two lizards were seen in consecutive years and one lizard was seen twice in 1993. Also noteworthy are the four sightings of lizards by hikers from the nearby National Institute of Fitness in the upper 2/3 of the canyon. Sightings of gila monsters were similarly concentrated in the immediate areas to the north, east, and south of the north hill (Figs. 1 & 2).

Activity patterns: Of the 34 morning/evening activity periods (17/17



respectively) only six failed to produce any sign (morning 4/evening 2). Two methods were employed to avoid any recounting of sign or confusion between activity periods. The first was to drag a stick over any tracks observed. The second was the natural period of afternoon winds that would degrade any morning sign. With these two safeguards in place assignment of tracks to an activity period was fairly simple. Consideration was given to the possibility of one lizard being responsible for multiple tracks during any one activity period. All factors being weighed: from 1 to 3 distinct individual tracks were usually observed during the period from 8:30 am to 12:30 pm and from 3 to 9 new individual tracks from 4:30 to 8:30 pm.

Sustaining the timing and frequency of the observed trackways is the timing and frequency of actual gila monster sightings. Of the 16 sightings observed, only 4 occurred during the morning activity period. Of the 12 evening activity period sightings, 9 occurred between the hours of 6:00 and 8:30 pm. Combining these two findings indicates that roughly 75% of the observed gila monster activity in Padre Canyon took place in the evening on warm days in spring and early summer. These findings suggest a significant departure from what has already been reported of the daily timing of peak activity in free-ranging gila monsters (Schwartzman and Ohmart, 1976; Coombs, 1977; Porzer-Kepner, 1981; Jones, 1983; Beck, 1986, 1990; Lowe, et al., 1986).

Why the lizards were found to be more active in the evening period is difficult to explain. Perhaps, for reasons involving the relative narrowness of the canyon along with the towering cliffs rising 500' or more from the valley floor on the east side, and the observed concentration of activity being in the northern narrower end, the lizard is restricted from taking advantage of early morning direct sunlight which certainly could contribute to maintaining the preferred activity body temperature. The cliffs on the west side tower 1,200' above the valley floor and put the canyon in total shade hours before sunset, providing an earlier cooling period immediately following the hottest part of the day. Indeed, without the application of temperature-sensing radiotelemetry, we may never know for sure.

**Natural History Observations:** On six occasions gila monsters were observed while foraging. Each foray consisted of erratic zig-zaging, circling, and doubling back to varying degrees. Lizards generally moved down-slope from areas of loose rock until reaching the main wash, often following a smaller wash to get there. Stopping often, with much tongue flicking, they would intensively investigate the ground around and within clumps of vegetation, often digging into and entering mammal burrows. Almost without fail the lizards would return up-slope, retiring into a burrow or natural cavity beneath a sandstone boulder. Lizards were also observed foraging in and around these rocky areas, to a lesser degree.

Although no lizards were actually observed feeding, one was observed defecating. The lizard began by dragging the cloaca on the ground with a slight side-to-side motion. It then lifted both rear legs, with both feet off the ground pointing forward. The tail was then lifted and the feces expelled. This was followed by dragging the hind quarters for a few inches before resuming foraging activity. Later examination of the fecal matter produced unidentified mammal hairs.

One adult gila monster was observed with the apparent battle scars of male/male territorial combat. This lizard, observed in mid-May of '92, was covered with a thin film of dried blood on his head, neck, and front legs. Closer examination revealed numerous "needle-point" bite marks, especially to the head and neck.

Of the 13 individual gila monsters observed, most were very large adults, and somewhat larger than most of the adults personally encountered in northwestern Arizona. Of the remainder, two were immature with one of these animals being scarcely one foot in length. In Daniel Beck's (1990) previous work on the gila monster in Utah he mentions that no juveniles were found. He makes no reference to finding any juvenile sign. This author has encountered the unmistakable tracks of gila monsters with foot prints smaller than a quarter on five occasions in Padre Canyon (Fig. 3), mostly in the

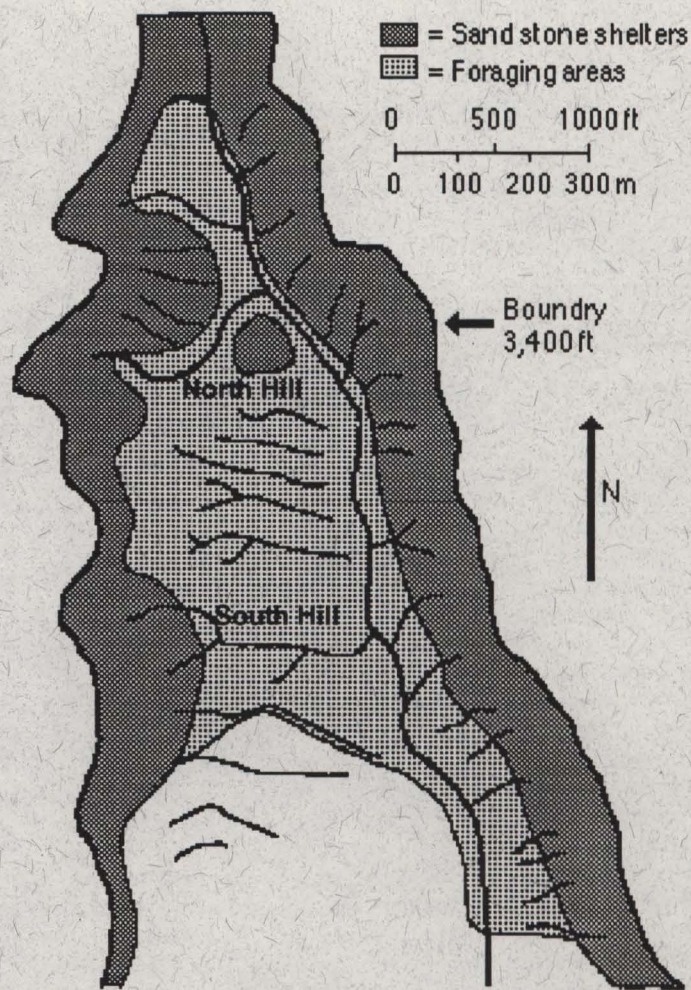


Fig. 1. Areas of Padre Canyon used by gila monsters for shelter and foraging.

vicinity of the dune area at the northern end. These tracks were always seen in the early morning and are likely to have been made sometime during the previous evening.

Gila monsters in the study area displayed a high amount of dorsal pattern variation. Although no two lizards look exactly alike, most possess similar regional characteristics. The only character observed with any amount of consistency was the tendency to exhibit a heavy amount of dark mottling in the light areas between body bands. The width of the body bands varied greatly, with two individuals' bands being sufficiently wide that little dark mottling was present. The amount of dark pigment in the light areas of the tail also varied greatly, ranging from nearly absent to heavily speckled.

### The Tuacahn Project

Tuacahn is an arts development, presently building an 1,800 seat amphitheater for theatrical productions and a related school for the performing arts (See Ivan M. Lincoln's article "Sounds of history will fill S. Utah canyon by '94" in the *Deseret News*, November 22, 1992). Originally construction was not to start until the Habitat Conservation Plan was completed in early 1994. However, it appears that construction is under way and that the gila monster population is going to be adversely impacted much earlier than anticipated. The Heritage Arts Foundation is evidently taking a calculated risk that they will not disrupt any of the relatively few tortoises in the area and are proceeding with the development. The amphitheater, school, and parking areas have all been cleared of all rocks and brush. A number of trees in the wash have been bulldozed. Any gila monsters estivating in these areas are buried. Any food supply from the cleared area is gone. Foot traffic through the canyon now goes up the wash or the east bench, increasing the disruption of the remaining gila



to another area capable of supporting them, undisturbed.

### Conclusion

The major population of gila monsters in Padre Canyon will soon be a memory. The state has no way of legally stopping the Heritage Arts Foundation from rightful use of their property to save them. The Desert Tortoises are not in sufficient numbers to be seriously impacted and the U.S.F.W.S. has not yet taken any action to stop construction. With the damage to the habitat already sustained, the gila monster will likely be eliminated from most of the canyon within a few years.

It is the recommendation of this consultant and the Redrock Wildlife Foundation which funded this report, that the Utah Division of Wildlife resources undertake a live-salvage program and provide these animals for research and/or relocation.

Mr. Cecil Schwalbe of the University of Arizona (and former herpetologist with the Arizona Game & Fish Department) indicated in a recent conversation that relocation is not considered an option in Arizona, because of health considerations to recipient populations. Arizona does however make available any gila monsters salvaged from development for research and education to institutions and private individuals all over the country.

A number of researchers have indicated an interest in studying the toxicology, DNA, and reproduction and life history characteristics of Utah Gila monsters, particularly in comparison with other populations to the south. Until the logistics and dynamics of relocation are accurately assessed, these activities should be allowed through live-salvage.

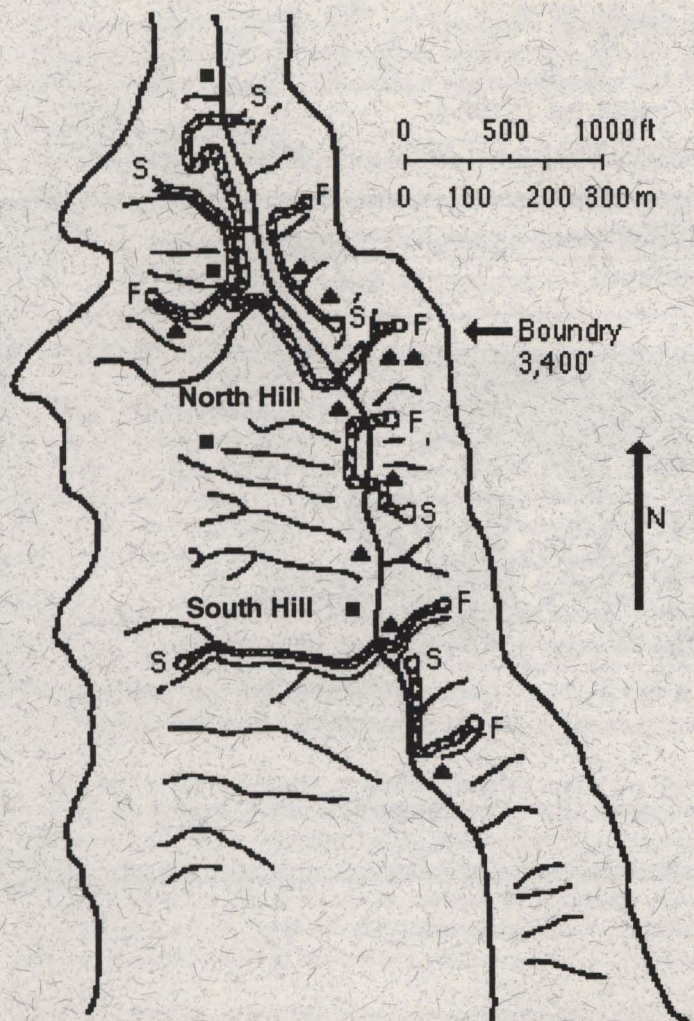


Fig. 2 Sightings of gila monsters by N.I.F. hikers (■) and by the author (▲). Lines represent the approximate route traveled by lizards from start (S) to finish (F) within shelter.

monster habitat.

During a visit with the construction supervisor, the full extent of the project was discussed. Based on this discussion and the project plan, it is estimated that more than 50% of the home range and foraging areas will have been destroyed upon completion.

The problem of how much disruption of the gila monster population would occur was discussed with Dr. James MacMahon, Dean of Science at Utah St. University in Logan. He indicated that the gila monster would not likely be able to coexist with the development since increased foot traffic and activity would physically change the surrounding habitat by collapsing burrows, digging around the area, and changing soil conditions necessary for survival.

Tuacahn hopes to tap into the millions of tourists passing through the St. George area en-route to southern Utah's national parks. Visitors could number over 100,000 in the first year alone, supporting the assessment of impact on gila monsters.

Compounding the problem is the concurrent timing of human/lizard activities. Most of the human activity at Tuacahn is scheduled to take place during the evening in Spring and early Summer. People will be filing in at about the same time the lizards have been found to be most active. Undoubtedly there will be confrontations, possibly leading to the death and/or removal of lizards until the local population is nearly eliminated. Those lizards surviving the initial contact will certainly be adversely affected by the new sights, sounds, and smell of their altered environment, given their shy and secretive nature (Lowe, et al., 1986). Foraging and other normal activities will be inhibited. Any attempt to migrate away from the intruders will likely be futile, based on the lack of an escape route through suitable habitat



Fig. 3 Juvenile gila monster tracks in the sand dune area.

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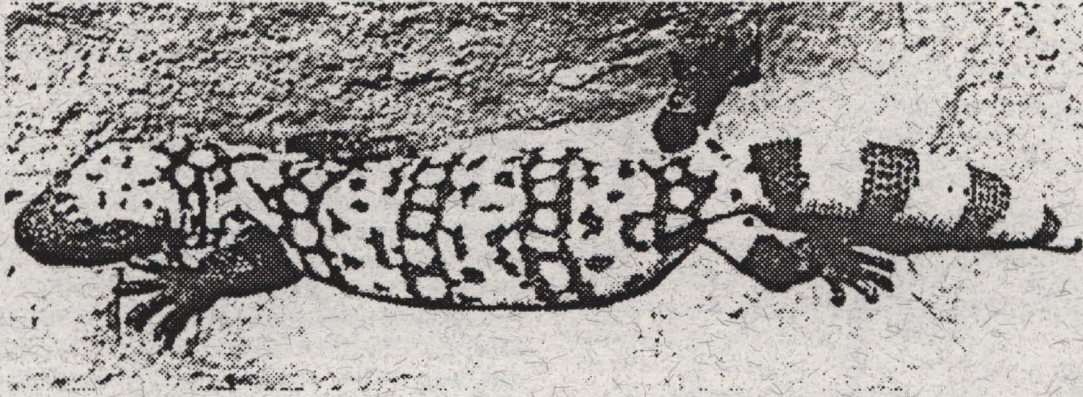
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Submitted by KERRY LANE CROWTHER, Provo, Utah

**No UtAH meeting this month. We will meet again in February.  
Happy Holidays!**



*Heloderma suspectum cinctum* From Washington County, Utah. Photograph by Kerry Crowther

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